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09/908,730	07/20/2001	Yoshihiko Maeda	49677-082	8695

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MCDERMOTT WILL & EMERY LLP
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096

EXAMINER	
LI, SHI K	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 04/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/908,730	MAEDA, YOSHIHIKO	
	Examiner	Art Unit	
	Shi K. Li	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okano et al. (U.S. Patent 6,449,074 B1) in view of Clark (L. Clark, "Evolution of Optical Transport in the AT&T Network", OFC '98, 1998) and Marmur (U.S. Patent 6,466,886 B1).

Okano et al. teaches in FIG. 1 a WDM transmission system comprising a transponder 10 for receiving an optical signal and converting the wavelength of the signal to an optical signal for a WDM system, a transponder 18 for receiving the WDM signal and converting the wavelength signal to an optical signal for receiver 20. Okano et al. teaches in FIG. 12-13 to send unmodulated signal for inoperative channels.

The difference between Okano et al. and the claimed invention are (a) Okano et al. does not teach SDH signal and (b) Okano et al. does not teach to shut down optical output to the receiver at the receiving end of the WDM system when input signal is missing.

Clark teaches to use transponder as interface between SONET and WDM. SDH is the European equivalent of SONET. One of ordinary skill in the art would have been motivated to combine the teaching of Clark with the WDM transmission system of Okano et al. because SONET/SDH equipment has been widely deployed. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use transponders for connecting

SONET/SDH equipment to WDM system, as taught by Clark, in the WDM transmission system of Okano et al. because SONET/SDH equipment has been widely deployed.

Okano et al. teaches in FIG. 12-13 to send unmodulated signal for inoperative channels. However, Okano et al. and Clark do not teach to shut down output at the receiving end of the WDM system for inoperative channels. Marmur teaches in FIG. 1 a transponder. The transponder includes FPGA 12 for detecting Loss of Signal (LOS) and Loss of Frame (LOF) and a TX-EN signal for enabling the transmitter under normal condition. FIG. 1 of Marmur suggests turning off the TX-EN signal for disabling the transmitter under abnormal condition, e.g., when LOS or LOF is detected. For an unmodulated signal, LOF is active. Therefore, Marmur suggests shutting down the transmitter when an unmodulated signal is received. One of ordinary skill in the art would have been motivated to combine the teaching of Marmur with the modified WDM transmission system of Okano et al. and Clark because a transmission system is expected to reproduce at the receiving end the exact same signal as in the transmitting end. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to shut down the transmitter when an unmodulated signal is received, as suggested by Marmur, in the modified WDM transmission system of Okano et al. and Clark because a transmission system is expected to reproduce at the receiving end the exact same signal as in the transmitting end.

3. Claims 2-3, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okano et al., Clark and Marmur as applied to claim 1 above, and further in view of Kobayashi (U.S. Patent 6,192,060 B1).

Okano et al., Clark and Marmur have been discussed above in regard to claim 1. Marmur teaches in FIG. 1 a transponder includes clock recovery circuit 17 and signal type indication

input to FPGA 12. Therefore, EPGA can compare signal type indication input and clock recovered by CDR 17 to determine whether the two match or not. The difference between Okano et al., Clark and Marmur and the claimed invention is that Okano et al., Clark and Marmur do not teach threshold setting circuit and bias circuit for the transmitter. Kobayashi teaches in FIG. 2 a driving circuit for a laser diode. It includes threshold setting circuit comprising pulse current driver 2, pulse current controller 12 and mark-space ratio detector 8, and bias adjusting circuit comprising bias controller 9, bias circuit 3 and average value detector 7. One of ordinary skill in the art would have been motivated to combine the teaching of Kobayashi with the modified WDM transmission system of Okano et al., Clark and Marmur because the circuits of Kobayashi compensate for temperature variation and prevent distortion. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include threshold circuit and bias circuit, as taught by Kobayashi, in the modified WDM transmission system of Okano et al., Clark and Marmur because the circuits of Kobayashi compensate for temperature variation and prevent distortion.

4. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okano et al., Clark, Marmur and Kobayashi as applied to claims 2-3, 5 and 7 above, and further in view of Blank et al. (U.S. Patent 6,512,620 B1).

Okano et al., Clark, Marmur and Kobayashi have been discussed above in regard to claims 2-3, 5 and 7. The difference between Okano et al., Clark, Marmur and Kobayashi and the claimed invention is that Okano et al., Clark, Marmur and Kobayashi do not teach a storage device for storing the bias voltage and optical output relationship. Blank et al. teaches in FIG. 2 and col. 4, lines 23-25 to store correction bias current in a programming device PROM. One of

ordinary skill in the art would have been motivated to combine the teaching of Blank et al. with the modified WDM transmission system of Okano et al., Clark, Marmur and Kobayashi because for different wavelengths, different bias currents are needed and storing correction bias current for different wavelengths allows the same circuit to be used for all wavelengths. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to store correction bias current in memory, as taught by Blank et al., in the modified WDM transmission system of Okano et al., Clark, Marmur and Kobayashi because for different wavelengths, different bias currents are needed and storing correction bias current for different wavelengths allows the same circuit to be used for all wavelengths.

Response to Arguments

5. Applicant's arguments filed 12 November 2004 have been fully considered but they are not persuasive.

The Applicant argues that Okano, Clark and Marmur, taken alone or in combination, do not disclose or suggest that the optical signals output from the transponder 10 are optical signals having non-modulated state and optical level being substantially the same as in a modulated state. The Examiner disagrees. Okano teaches in col. 10, limes 3-4 that the E/O converter emits steady light, i.e., a continuous lightwave or unmodulated lightwave. The purpose of including inoperative channels is to maintain a constant optical output for the transponder (see, e.g., col. 7, lines 65-67 of Okano). Therefore, the output power of the steady light must be essentially the same as in a modulated state.

The Applicant argues that Marmur discloses shutting down the transmitter but does not disclose or suggest that the receiver shuts down the optical output of the receiver. The Examiner

disagrees. Marmur teaches in FIG. 1 a transponder 10, which is equivalent to FIG. 2 of the instant application where a receiver 20 is disclosed. Receiver 11 of FIG. 1 of Marmur is equivalent to O/E converter of FIG. 2 of instant application; transmitter 23 of FIG. 1 of Marmur is equivalent to SDH signal generating circuit of FIG. 2 of instant application. Marmur teaches to shut down Tx of FIG. 1, which is equivalent to the shutting down of SDH signal generating circuit of FIG. 2 of instant application. Therefore, the teaching of Marmur reads on the limitation of claim 1.

In summary, Okano, Clark and Marmur, considered as a whole, teach all the limitations of claim 1, and claim 1 is unpatentable under 35 U.S.C. 103(a).

The Applicant argues that neither Okano, Clark, Marmur nor Kobayashi, taken alone or in combination, discloses or suggests a receiver comprising a clock recovery circuit or an SDH signal generating circuit as is recited in claims 3 and 7. The Examiner disagrees. As discussed above, FIG. 1 of Marmur is equivalent to FIG. 2 of instant application. Marmur teaches in FIG. 1 clock and data recovery (CDR) unit 17, which is equivalent to the clock recovering circuit 22 of FIG. 2 of instant application.

The Applicant argues that neither Okano, Clark, Marmur nor Kobayashi, taken alone or in combination, discloses or suggest providing a driving circuit, or setting the input threshold voltage so as to fix the output of the driving circuit while the adjusting the bias voltage via the adjusting circuit so that the optical output level is equal to the optical level in the normal state when the receiving circuit detects a missing input signal or out of synchronous signal. The Examiner disagrees. Kobayashi teaches in FIG. 2 a driving circuit for a laser diode. It includes threshold setting circuit comprising pulse current driver 2, pulse current controller 12 and mark-

space ratio detector 8, and bias adjusting circuit comprising bias controller 9, bias circuit 3 and average value detector 7. The feedback control circuit of Kobayashi keeps the average output power at a constant regardless of whether the laser is modulated or unmodulated.

The Applicant argues that neither Okano, Clark, Marmur nor Kobayashi, taken alone or in combination, discloses or suggests the relationship between the predetermined bias voltage in a modulated state and a non-modulated state of the transmitter, as recited in claim 6. However, claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okano et al., Clark, Marmur and Kobayashi and further in view of Blank et al.

Regarding claims 4 and 6, Blank et al. teaches in FIG. 2 and col. 4, lines 23-25 to store correction bias current in a programming device PROM. One of ordinary skill in the art would have been motivated to combine the teaching of Blank et al. with the modified WDM transmission system of Okano et al., Clark, Marmur and Kobayashi because for different wavelengths, different bias currents are needed and storing correction bias current for different wavelengths allows the same circuit to be used for all wavelengths. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to store correction bias current in memory, as taught by Blank et al., in the modified WDM transmission system of Okano et al., Clark, Marmur and Kobayashi because for different wavelengths, different bias currents are needed and storing correction bias current for different wavelengths allows the same circuit to be used for all wavelengths.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

skl
31 March 2005

JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600